CLAIMS

What is claimed is:

1. A disk drive comprising:

a) a rotatable disk having a plurality of tracks, each track having a plurality of timing sections comprising:

i) a preamble represented as a preamble pattern of at least n bits; and

ii) a timing mark (TM) following said preamble, said TM being represented as a TM pattern of n bits, wherein said TM pattern has a pre-shift sliding distance d1 to the concatenation of said preamble pattern with said TM pattern, and has a post-shift sliding distance (d2; m) to said TM pattern, said TM pattern being referred to as a (n, d1, d2, m) pattern, wherein said TM pattern satisfies an optimality condition selected from the group consisting of: m is maximal given n, d1, and d2; d1 is maximal given n, d2, and m; d2 is maximal given n, d1, and m; and n is minimal given d1, d2, and m;

b) a read/write head for reading information from said disk and/or writing information to said disk; and

c) a TM decoder, responsive to information read from said disk by said head, for detecting the TM patterns in said read information to thereby signal the presence of the timing sections, wherein said TM decoder searches for said TM patterns within a TM search window which nominally extends m bits past the last bit of the TM on the disk and at least n bits before the first bit of the TM on the disk.

2. The disk drive of claim 1, wherein said timing marks are followed by data on said tracks.

3. The disk drive of claim 1, wherein said timing marks are followed by servo position information on said tracks.

4. The disk drive of claim 3, further comprising:

d) an actuator connected to said head for positioning said head to one of said tracks and maintaining said head on said one of said tracks; and

e) servo electronics coupled to said TM decoder for controlling the actuator in response to said servo position information read by said head after detection of said TMs by said TM decoder.

5. The disk drive of claim 1, wherein the sliding distances d1 and (d2; m) are bitwise Hamming distances.

6. The disk drive of claim 1, wherein the sliding distances d1 and (d2; m) are j-bit burst Hamming distances.

7. The disk drive of claim 1, wherein said TM pattern is a member of a set of (n, d1, d2, m) patterns, wherein all members of said set have the same n, the same d1, the same d2 and the same m, said set having at least two members.

8. The disk drive of claim 7, wherein each member j of said set has a longest run of zeros with length L(j), and said TM pattern is a member of said set with minimal L(j).

9. The disk drive of claim 7, wherein said TM pattern is a member of said set having a maximal number of ones.

10. The disk drive of claim 1, wherein said post-shift sliding distance (d2; m) is the minimum distance between the first n-k bits of said TM bit pattern and the last n-k bits of said TM bit pattern as integer k is varied from 1 to m inclusive.

11. The disk drive of claim 1, wherein each track further comprises a postscript adjacent to and positioned after said TM in each of said servo sectors, the postscript being represented as a postscript bit pattern having at least n bits.

12. The disk drive of claim 11, wherein said post-shift sliding distance (d2; m) is the minimum distance between said TM pattern and bits k+1 through n+k of a concatenation of said TM bit pattern followed by said postscript bit pattern as integer k is varied from 1 to m inclusive.

13. The disk drive of claim 1, wherein d2 is greater than 2.

14. The disk drive of claim 13, wherein m is greater than 2.

15. The disk drive of claim 1, wherein m is greater than 2.

16. The disk drive of claim 1, wherein said disk comprises a magnetic disk.

17. The disk drive of claim 1, wherein said disk comprises an optical disk.